PROTOCOL FOR LIFE BALANCE®

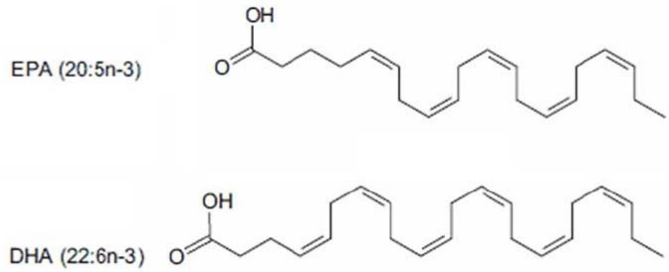
Dietary Supplement Information
for Physicians with Naturokinetics®
PRODUCT CODE: P1661
CATEGORY: FATTY ACIDS

Ultra Omega-3 500 EPA/250 DHA

TECHNICAL SUMMARY

Fish oils are naturally abundant in the omega-3 fatty acids (FAs), EPA (eicosapentaenoic acid) and DHA (docosahexaenoic acid). EPA and DHA are important structural components of cell membranes, affecting membrane fluidity, flexibility, and permeability, as well as the efficiency and character of cellular signaling.* Omega-3 FAs are especially critical for proper immune system function and help to maintain cardiovascular and joint health.* Omega-3 FAs are concentrated in eye and brain tissues, where they help to promote proper function of the central nervous system and support eye health.*

Structure Formula:



Chemical Name: EPA (*cis*-5,8,11,14,17-Eicosapentaenoic acid); DHA (*cis*-4,7,10,13,16,19-Docosahexaenoic acid)

Allergen and Additive Disclosure: Not manufactured with yeast, wheat, gluten, milk, egg or shellfish ingredients. Produced in a GMP facility that processes other ingredients containing these allergens.

Contains fish (anchovies).

Delivery Form: Enteric Coated, Softgel Capsule (bovine gelatin, glycerin, water)

ROLE AS NUTRIENT/FUNCTION

EPA and DHA omega-3 fatty acids are normal structural components of cellular membranes.* They affect the biophysical properties of the membrane (e.g. fluidity, thickness, and deformability).* DHA, as the most unsaturated fatty acid in membranes, is highly flexible within the membrane and is particularly effective at accommodating transitional changes associated with transmembrane protein activation. Additionally, EPA and DHA act as substrates for the production of various compounds involved in immune function such as eicosanoids and serve as ligands for nuclear receptors influencing gene regulation.*

NATUROKINETICS®

Liberation: Disintegration of the enteric-coated capsule is tested with two USP testing methods set to simulate two different GI environments. Capsules are exposed to a low pH media simulating the gastric environment; in these conditions, the disintegration occurs after 60 minutes, confirming the acid resistance of these enteric-coated softgel capsules. Capsules are also exposed to a more neutral environment, simulating the intestinal environment. In these conditions, disintegration occurs within 60 minutes, confirming that the capsule will dissolve while in the intestine.

Absorption: DHA and EPA are absorbed in the small intestine like other long-chain fatty acids. While in the digestive tract, they are mixed with bile salts and lecithin to form micelles, which are absorbed through the intestine wall. Fatty acids are then converted to triglycerides (TG). These TG are combined with apolipoproteins to form chylomicrons, which are transferred into the lymphatic system and then to the bloodstream. Clinical studies using omega-3 fish oil dietary supplements show that EPA/DHA blood levels increase proportionally along with the increase of daily ingested dose. (figure 1)

Supplement Facts

Serving Size 1 Softgel

	Amount Per Serving	% Daily Value
Calories	10	
Total Fat	1 g	1%*
Saturated Fat	< 0.5 g	< 1%*
Polyunsaturated Fat	1 g	†
Monounsaturated Fat	< 0.5 g	†
Natural Fish Oil Concentrate	1 g (1,000 mg)	†
Omega-3 Fatty Acids:		
Eicosapentaenoic Acid (EPA)	500 mg	†
Docosahexaenoic Acid (DHA)	250 mg	†

* Percent Daily Values are based on a 2,000 calorie diet.
† Daily Value not established.

Other ingredients: Softgel Capsule (bovine gelatin, glycerin, enteric coating, water) and Natural d-alpha Tocopherol.

Contains fish (anchovies).
Natural d-alpha Tocopherol from non-GMO soy.

- **Cardiovascular Support*- Enteric Coated**
- **Central Nervous System Health***

SUGGESTED USAGE: Take 1 softgel 1 to 2 times daily with food, or as directed by your healthcare practitioner.

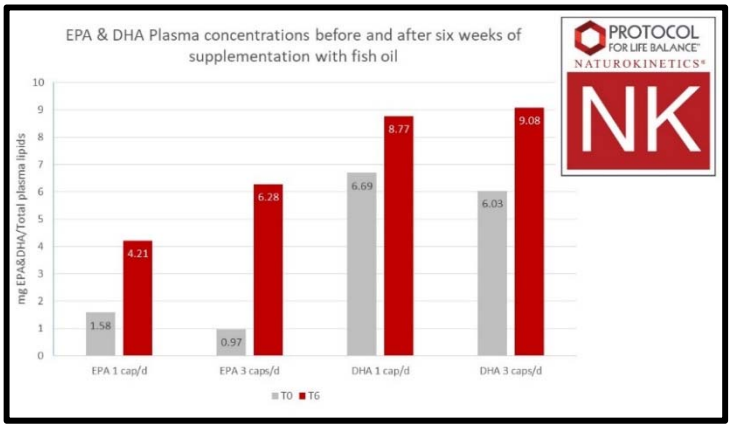


Figure 1: Plasma concentrations of EPA and DHA before (T0) and after (T6) 6 weeks of administration of Fish Oil Capsules to healthy volunteers (n=8). 1 cap group received 150 mg of EPA and 106 mg of DHA. 3 caps group received 450 mg of EPA. P<0.05 for EPA T6 vs. T0.

*These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure, or prevent any disease.

Distribution: In the bloodstream, TG transported in chylomicrons are hydrolyzed to free fatty acids and glycerol by lipoprotein lipase and reach peripheral tissues through capillaries. DHA is the most abundant omega-3 FA in cell membranes and is present in all organs. It is most abundant in the retina, cerebral cortex, red blood cells, spleen, liver, muscle tissue, and heart.

Very small quantities of EPA are found in tissues, mainly skeletal muscle and liver. DHA generally exceeds EPA 5- to 30-fold in most organs, except in the brain and retina where it exceeds EPA by several hundred-fold. After supplementation with fish oil, DHA and EPA levels increase in muscle tissue, including the heart and the adipose tissue. Animal studies confirm that brain tissue, heart, skeletal muscle, red blood cells, bone marrow, retina, and liver content of EPA/DHA are increased after supplementation with omega-3 FAs.

Metabolism: Up to 12% DHA is recycled to EPA and docosapentaenoic acid (DPA). EPA/DHA are also substrates for cyclooxygenases and lipoxygenases, and therefore balance the production of eicosanoids and other autocoids, such as resolvins.* These fatty acids are also ligands for nuclear receptors and can therefore influence gene expression regulation.*

Elimination: DHA has slower plasma clearance than does EPA. After discontinuation of supplementation, the EPA level returns to baseline after 4 weeks; while DHA concentrations remain elevated for up to 24 weeks or longer, depending on metabolic requirements.

CLINICAL VALIDATION

- **Cardiovascular support.*** Large-scale epidemiological studies as well as prospective secondary prevention studies suggest that EPA/DHA consumption (either as fatty fish or supplements) supports cardiovascular health.*
- **Central nervous system health.*** In a randomized, double-blind, placebo-controlled clinical trial with 33 healthy volunteers, supplementation with fish oil (providing 800 mg DHA and 1,600 mg EPA/day) for 35 days resulted in statistically significant improvement of several mood parameters and measures of attention (including significant reduction in errors) and reaction time, as compared to the placebo group (olive oil).*

SAFETY INFORMATION

Tolerability: Marine-source omega-3 fatty acids are generally recognized as safe (GRAS) when consumed up to 3 g/d. Occasional adverse effects may include gastrointestinal complaints such as flatulence, bloating, and diarrhea.

Contraindications: Fish oil should not be used before or immediately after surgical procedures. Discontinue 2 weeks prior to a scheduled surgical procedure.

INTERACTIONS

Drug Interactions: Fish oil should be used cautiously when taking anti-platelet or anticoagulant medications such as Plavix®, Coumadin®, or aspirin. Taking orlistat with fish oil may reduce the absorption of the supplement. Take orlistat and fish oil 2 hours apart to avoid interaction.

Supplement Interactions: Supplements such as *Ginkgo biloba*, turmeric, garlic, and willow bark may increase the risk of bleeding when taken with fish oil.

Interaction with Lab Tests: Healthy individuals may exhibit higher than normal ratios on PT/INR lab tests when taking fish oil.

STORAGE

Store in a cool, dry place.